

Frederick Joseph LaRiviere

Associate Dean of the College for Academic Affairs
Washington and Lee University
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Education

- 2001 Ph.D. in Biochemistry, University of Colorado at Boulder
- 2001 Graduate Certificate in Biophysics, University of Colorado at Boulder
- 1994 B.A. in Chemistry and Biochemistry, Clark University

Professional Experience

- 2019-present Associate Dean of the College for Academic Affairs, Washington and Lee University
Responsibilities include overseeing curricular matters and serving as the Vice Chair of the Committee on Courses and Degrees; directing faculty development programs including the new faculty mentoring cohort, summer research collaboration grants, manuscript completion grants program, teacher-scholar development cohorts and curricular mini-grants; supporting and advising students for academic success, collaborating when appropriate with the Office of Student Affairs; and assisting the Dean of the College on strategic priorities.
- 2012-present Associate Professor of Chemistry and Biochemistry, Washington and Lee University
- 2006-2012 Assistant Professor of Chemistry, Washington and Lee University
- 2005-2006 Dreyfus Teaching and Research Fellow in Chemistry with Professor Julie T. Millard, Colby College
- 2002-2005 Damon Runyon Cancer Research Foundation Postdoctoral Fellow with Professor Melissa J. Moore, Howard Hughes Medical Institute/ Brandeis University
- 2001-2002 Howard Hughes Medical Institute Postdoctoral Researcher with Professor Melissa J. Moore, Howard Hughes Medical Institute/ Brandeis University

Courses Taught at W&L

BIOL 160/CHEM 160 – CSI: W&L
BIOL 274 – Structural Biology
CHEM 110 – General Chemistry
CHEM 111L – General Chemistry Laboratory
CHEM 175 – Teaching Inquiry Science in the Local Schools
CHEM 295 – Ribosome Biogenesis and Ribosomal RNA Quality Control
CHEM 298 – Mechanisms of Cancer
CHEM 341 – Biochemistry I
CHEM 342 – Biochemistry II
CHEM 343 – Biochemistry I Laboratory
CHEM 344 – Biochemistry II Laboratory
CHEM 345 – Advanced Biochemistry
CHEM 421/2/3 – Directed Individual Research
CHEM 471/3 – Senior Thesis
CHEM 493 – Honors Thesis
INTR 493 – Honors in Interdisciplinary Work
WRIT 100 – First Year Writing Seminar: The Science of Sherlock

Undergraduate Research Students Supervised (* denotes thesis student)

39 at W&L -- Matthew Smith, Andrew Ackell*, Lucas Carmalt, Carly Levin*, Michael McArdle, Kehvon Clark*, Sarah Connor*, Bridget Donovan*, Victoria Garcia, Caitlin Edgar, Kelli Jarrell, Diane Lee*, Katie Driest*, Emily Kunkel, Jessie Ykimoff, Kelsey Baker, Andrew Renaldo, Derek Barisas*, Darlon Jan*, John Lankalis, Hunter Brooks, Grace Lee, Chris Hu, Karen Villarroel, David Zekan*, Liam Gaziano, Susan Ma, Victor Yu*, Ethiopia Getachew, Jenna Kim, Kalady Osowski, Lauren Pupa, George Barker, Ethan Hartman, Austin Smith, Tori Hester, Matt Holloway, Ben Peeples, Andrew Crean

Publications (* denotes undergraduate student)

Alty LT and **LaRiviere FJ**. (2016) Peptide mass fingerprinting of egg white proteins. *Journal of Chemical Education* 93:772-777.

Cole SE, **LaRiviere FJ**, Merrikh, CN, and Moore MJ. (2009) A convergence of rRNA and mRNA quality control pathways revealed by mechanistic analysis of nonfunctional rRNA decay. *Molecular Cell* 34:440-450.

LaRiviere FJ, Newman AG*, Watts ML*, Bradley SQ*, Juskewitch JE*, Greenwood PG, and Millard JT. (2009) Quantitative PCR analysis of diepoxybutane and epihalohydrin damage to nuclear versus mitochondrial DNA. *Mutation Research – Fundamental and Molecular Mechanisms of Mutagenesis* 664:48-54.

Carson TM*, Bradley SQ*, Fekete BL, Millard JT, and **LaRiviere FJ**. (2009) Forensic analysis of canine DNA samples in the undergraduate biochemistry laboratory. *Journal of Chemical Education* 86:376-378.

Cole SE and **LaRiviere FJ**. (2008) Analysis of nonfunctional rRNA decay in *Saccharomyces cerevisiae*. *Methods in Enzymology* 449:239-259.

LaRiviere FJ, Miller LM, and Millard JT. (2007) Showing the true face of chemistry in a service-learning outreach course. *Journal of Chemical Education* 84:1636-1639.

LaRiviere FJ, Cole SE, Ferullo DJ, and Moore MJ. (2006) A late-acting quality control process for mature eukaryotic rRNAs. *Molecular Cell* 24:619-626.

LaRiviere FJ, Wolfson AD, and Uhlenbeck OC. (2001) Uniform binding of aminoacyl-tRNAs to elongation factor Tu by thermodynamic compensation. *Science* 294:165-168.

Wolfson AD, **LaRiviere FJ**, Pleiss JA, Dale T, Asahara H, and Uhlenbeck OC. (2001) tRNA conformity. *Cold Spring Harbor Symposium on Quantitative Biology* 66:185-193.

Sherlin LD, Bullock TL, Nissan TA, Perona JJ, **LaRiviere FJ**, Uhlenbeck OC and Scaringe SA. (2001) Chemical and enzymatic synthesis of tRNAs for high-throughput crystallization. *RNA* 7:1671-1678

Long DM, **LaRiviere FJ**, and Uhlenbeck OC. (1995) Divalent metal ions and the internal equilibrium of the hammerhead ribozyme. *Biochemistry* 34:14435-14440.

External Funding

National Science Foundation Major Research Instrumentation Grant; "Acquisition of a Laser Scanning Confocal Microscope for Enhancing Undergraduate Research and Training across the Sciences at Washington & Lee University and Virginia Military Institute" [Fiona L. Watson (PI), Jonathan C. Erickson (co-PI), **Frederick J. LaRiviere** (co-PI), Robert E. Stewart (co-PI), and James E. Turner (co-PI)], Awarded August, 2011. \$365,736

Jeffress Memorial Trust Research Grant renewal; "Investigating non-functional ribosomal RNA decay and ribosomal assembly in *Saccharomyces cerevisiae*," Awarded January, 2011. \$10,000

J. Edwin Treakle Foundation; "Equipment for new biochemistry II laboratory," Awarded June, 2010. \$1,000

Jeffress Memorial Trust Research Grant renewal; "Investigating non-functional ribosomal RNA decay and ribosomal assembly in *Saccharomyces cerevisiae*," Awarded January, 2009. \$10,000

Virginia Foundation for Independent Colleges; "New equipment for biochemistry laboratory," Awarded July, 2007. \$6,667

J. Edwin Treakle Foundation; "Additional equipment for new biochemistry laboratory," Awarded June, 2007. \$2,000

Jeffress Memorial Trust Research Grant; "Investigating non-functional ribosomal RNA decay and ribosomal assembly in *Saccharomyces cerevisiae*," Awarded January, 2007. \$22,000

Camille and Henry Dreyfus Faculty Start-up Award; "Investigation of the mechanisms of ribosome synthesis and ribosomal RNA degradation," Awarded July, 2006. \$30,000

J. Edwin Treakle Foundation; "Equipment to build a new biochemistry laboratory," Awarded June, 2006. \$2,000 (with Lisa Alty)

Internal Funding

Washington and Lee University Lenfest Grant; " Investigating RNA degradation in yeast," Summer 2018. \$5995

Washington and Lee University Lenfest Grant; "Investigating a novel tRNA degradation pathway in yeast," Summer 2017. \$4500

Washington and Lee University Lenfest Grant; "Investigating the role of helicases in ribosome biosynthesis and degradation," Summer 2016. \$4500

Washington and Lee University Lenfest Grant; "Biochemical studies of ribosome assembly and rRNA degradation," Summer 2015. \$5894

Washington and Lee University Lenfest Grant; "Investigating the mechanistic connection between NRD and ribophagy in yeast," Summer 2014. \$4500

Washington and Lee University Lenfest Grant; " Biochemical studies of NRD and ribophagy" Summer 2013. \$6071

Washington and Lee University Lenfest Grant; "A high-throughput genetic screen to identify nonfunctional ribosomal RNA decay factors," Summer 2012. \$6156

Washington and Lee University Lenfest Grant; "A high-throughput genetic screen to identify nonfunctional ribosomal RNA decay factors," Summer 2011. \$6401

Washington and Lee University Lenfest Grant; "A high-throughput genetic screen to identify nonfunctional ribosomal RNA decay factors," Summer 2010. \$5175

Washington and Lee University Lenfest Grant; "Identification of nonfunctional ribosomal RNA decay proteins in eukaryotes," Summer 2009. \$1880

Conference Presentations (* denotes undergraduate student)

Yu V* and **LaRiviere FJ**. "Identification of helicase genes as novel NRD factors;" Dr. Melissa J. Moore Research Symposium; University of Massachusetts Medical School; Worcester, MA; October, 2017.

Yu V* and **LaRiviere FJ**. "Identification of helicase genes as novel NRD factors;" 2017 American Society for Biochemistry and Molecular Biology Annual Meeting; Chicago, IL; April, 2017.

Villarroel Gomez KJ* and **LaRiviere FJ**. "The effect of ultraviolet stress on nonfunctional rRNA decay;" 2016 American Society for Biochemistry and Molecular Biology Annual Meeting; San Diego, CA; April, 2016.

Zekan D* and **LaRiviere FJ**. "Effects of aging and nitrogen deprivation on nonfunctional rRNA decay;" 2016 American Society for Biochemistry and Molecular Biology Annual Meeting; San Diego, CA; April, 2016.

Driest KE*, Ykimoff JR*, and **LaRiviere FJ**. "Microarray analysis of nonfunctional ribosomal RNA decay in *Saccharomyces cerevisiae*;" 245th American Chemical Society Meeting; New Orleans, LA; April 2013

Desjardins SG, Finnegan A*, and **LaRiviere FJ**. "Modeling muscle contraction as a stochastic ratchet;" 244th American Chemical Society National Meeting; Philadelphia, PA; April, 2012.

Donovan BM*, Jarrell KL*, and **LaRiviere FJ**. "Investigating nonfunctional rRNA decay as a stress response in *Saccharomyces cerevisiae*;" 2011 American Society for Biochemistry and Molecular Biology Annual Meeting; Washington, DC; April, 2011.

Lee D* and **LaRiviere FJ**. "Monitoring changes in global gene expression in response to nonfunctional rRNA decay in *Saccharomyces cerevisiae*;" 2011 American Society for Biochemistry and Molecular Biology Annual Meeting; Washington, DC; April, 2011.

Connor SW*, Levin CS*, and **LaRiviere FJ**. "Development of a synthetic-lethal screen to identify nonfunctional rRNA decay pathway factors in *Saccharomyces cerevisiae*;" 2009 American Society for Biochemistry and Molecular Biology Annual Meeting; New Orleans, LA; April, 2009.

Connor SW* and **LaRiviere FJ**. "Development of a synthetic-lethal screen to identify nonfunctional rRNA decay pathway factors in *Saccharomyces cerevisiae*;" Virginia Commonwealth University Undergraduate Research Symposium/ Integrated Cellular and Molecular Signaling (ICAMS) Research Retreat; Richmond, VA; October, 2008.

Ackell APH* and **LaRiviere FJ**. "Identification of intersubunit bridges essential for ribosome stability in yeast;" 2008 American Society for Biochemistry and Molecular Biology Annual Meeting; San Diego, CA; April, 2008.

Levin CS* and **LaRiviere FJ**. "A dominant-lethal screen to identify non-functional rRNA decay pathway factors in yeast;" 2008 American Society for Biochemistry and Molecular Biology Annual Meeting; San Diego, CA; April, 2008.

Fowler DK* and **LaRiviere FJ**. "Mutations in intersubunit bridges lead to reduced stability of ribosomes in *Saccharomyces cerevisiae*;" 7th International Conference on Ribosome Synthesis; Warrenton, Virginia; August, 2006.

Invited Talks

"Revenge of the NRD: Identification of helicase genes as novel NRD factors," 28th Annual Harry C. Allen, Jr. Symposium, Clark University, Worcester, MA (2017)

"Revenge of the NRD: Quality control of eukaryotic ribosomes," Department of Chemistry Seminar Series, University of Richmond, Richmond, VA (2011)

"Nonfunctional rRNA decay: quality control of eukaryotic ribosomes," Department of Biology Seminar Series, Ithaca College, Ithaca, NY (2009)

"Nonfunctional rRNA decay: quality control of eukaryotic ribosomes," Department of Molecular Biology and Genetics, Cornell University, Ithaca, NY (2009)

"Quality control of ribosomes," Olke C. Uhlenbeck RNA Symposium, Chicago, IL (2008)

"Functional proofreading of eukaryotic ribosomes," RNA 2005: 10th Annual Meeting of the RNA Society, Banff, Alberta, Canada (2005)

"Quality control of translationally deficient ribosomes," Department of Chemistry and Biochemistry Seminar Series, Clark University, Worcester, MA (2004)

"Down-regulation of translationally deficient ribosomes in *S. cerevisiae*," Nucleic Acids Gordon Research Conference, Salve Regina University, Newport, RI (2004)

"Elongation factor Tu employs thermodynamic compensation to ensure uniform binding of elongator aa-tRNAs," RNA 2001: 6th Annual Meeting of the RNA Society, Banff, Alberta, Canada (2001)

University Committees and Service

Associate University Registrar Search Committee (2021)
Associate Director of Corporate and Foundation Relations Search Committee (2021)
Dean of the College Search Committee (2020-2021)
Vice Chair, Courses and Degrees Committee (2019-present)
Assessment and Care Team (ACT) Committee (2019-present)
Automatic Rule and Reinstatement Committee (2019-present)
International Education Committee (2019-present)
Financial Aid Committee (2019-present)
Glasgow Endowment Committee (2019-present)
Academic Calendar, Scheduling, and Registration Committee (2019-present)
Non-Tenure Track Faculty Task Force (2019-present)
University Registrar Search Committee (2019; 2021)
Dean of the College Administrative Assistant Search Committee (2019)
Associate Dean of the College for Administrative Affairs Search Committee (2019)
Organic Chemistry Faculty Search Committee (2018)
Quality Enhancement Plan (QEP) Selection Committee (2017-2018)
President's Advisory Committee (2016-2019)
Faculty Mentor for W&L Women's Field Hockey Team (2016-present)
Faculty Advisor for W&L Pre-dental Club (2016-2019)
2017 Science, Society, and the Arts Planning Committee (2015-2017)
Faculty Administrators Evaluation Committee (2015-16)
Faculty Representatives to the Board of Trustees (2014-16)
Writing Program Advisory Committee (2014-15; 2016-present)
Health Professions Advisory Committee (2013-2019)
Biochemistry Faculty Search Committee (2013-2014)
Chair, Analytical Chemistry Faculty Search Committee (2012-13)
Faculty Executive Committee (2010-13)
Bioinformatics Faculty Search Committee (2010-11)
Computational Biologist Faculty Search Committees (2009-10; 2011-12)
2011 Science, Society, and the Arts Planning Committee (2009-11)
HHMI Grant Advisory Committee (2008-2017)
Faculty advisor for ASBMB student affiliate chapter (2008-2019)
Committee on Socioeconomic Diversity in the Undergraduate Student Body (2008-09)
Teacher Education Advisory Committee (2007-13)
Radiation Safety Advisory Committee (2006-10; 2016-present)

Professional Societies

American Chemical Society (ACS)

American Society for Biochemistry and Molecular Biology (ASBMB)

Virginia Academy of Science

Professional Education and Training

Taught W&L/HHMI Summer Institute – A Professional Development Institute for Local Elementary School Educators; July, 2012 (with Bill Hamilton, W&L)

Taught W&L/HHMI Summer Institute – A Professional Development Institute for Local Elementary School Educators; July, 2011 (with Bill Hamilton, W&L)

National Computational Science Institute – Computational Chemistry for Chemistry Educators Workshop; Washington and Lee University; July, 2011

Taught W&L/HHMI Summer Institute – A Professional Development Institute for Local Elementary School Educators; July, 2010 (with Bill Hamilton, W&L)

Center for Workshops in Chemical Sciences – Workshop in Forensic Science; Williams College; June 2010

Taught W&L/HHMI Summer Institute – A Professional Development Institute for Local Elementary School Educators; July, 2009 (with Bill Hamilton, W&L)

Genome Consortium for Active Teaching – National Science Foundation DNA Microarray Workshop; Morehouse College; July, 2009